

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Facilitating Opportunities for Flexible,)	ET Docket No. 03-108
Efficient, and Reliable Spectrum Use)	
Employing Cognitive Radio Technologies)	ET Docket No. 00-47
)	(Terminated)
Authorization and Use of Software Defined)	
Radios)	

To the Commission:

REPLY COMMENTS OF:

New York State Office for Technology

Statewide Wireless Network

State Capitol, ESP

P.O. Box 2062

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June 1, 2004

I. INTRODUCTION

1. The New York State Office for Technology, Statewide Wireless Network (the State) offers the following reply comments in response to the Commission's Notice of Proposed Rule Making and Order in the above captioned proceeding, released December 30, 2003, FCC 03-322. The State offers its position on these issues - especially where they could affect the communications capabilities of Public Safety.

2. We applaud the Commission for embarking on bold new initiatives, which, one day, could introduce advanced technologies into the Public Safety community that will offer enhanced equipment functionality, facilitate interoperability, and ultimately save lives.

II. IMPACT OF SPECTRUM LEASING ON PUBLIC SAFETY

3. In our initial comments filed on the ET 03-108 the State expressed its opinion on many of the negative impacts of the leasing of Public Safety spectrum¹. Upon review of the filings, we note that others had reached similar conclusions². The State shares the same concerns regarding the leasing of Public Safety spectrum as expressed by both the National Public Safety Telecommunications Council (NPSTC) and the Association of Public Safety Communications Officials International (APCO). One of APCO's concerns was how spectrum leasing authority could distort and perhaps corrupt the Public Safety spectrum management process - thereby worsening spectrum shortages in many areas³. We concur with APCO that either state or local governments may be enticed to obtain large quantities of spectrum in the hopes of reaping financial gain from spectrum leasing. We therefore believe, as APCO asserts, that spectrum leasing could be abused and lead to further spectrum shortages.
4. We also concur with APCO on their assertion regarding the impracticality of interruptible spectrum leasing. The State agrees with APCO that Public Safety spectrum utilization

¹ New York State Office for Technology Statewide Wireless Network comments on ET 03-108, Section IV, page 13.

² Comments of Association of Public Safety Communications Officials (APCO) and the National Public Safety Telecommunications Council (NPSTC)

³ APCO comments on ET 03-108, page 2.

cannot be properly characterized using the Commission's assumption of low average usage⁴. Due to the varying envelope of traffic patterns and the random nature of emergencies, merely classifying "low usage" times as potential leasing opportunities is not a practical or effective approach. In their comments APCO suggested that trunked systems may be the only viable area where interruptible spectrum leasing could be possible due to the system's inherent method of centralized control⁵. From an operational perspective, the State believes that, except as prohibited by law, this leasing of "system time" is a far more practical alternative than looking for nulls in the time envelope of spectrum utilization. Through this approach, Public Safety could guarantee priority, and completely eliminate the interference potential that may otherwise result from the use of an open loop mobile or unlicensed device philosophy to enable spectrum sharing.

5. The State also agrees with the comments of NPSTC that the assumption that Public Safety has excess spectrum to lease is questionable. NPSTC cited the current unavailability of 700 MHz spectrum in one of their examples⁶. There are many analog television⁷ stations still on the air in the 700 MHz band across the United States, as well as international restrictions from Canadian Digital Television, all of which prevent Public Safety from fully accessing this spectrum. We fear that Public Safety may never be able to access the full 24 MHz of spectrum in the 700MHz Band in some areas.

⁴ Ibid, page 3.

⁵ Ibid, page 3.

⁶ NPSTC comments on ET 03-108, page 14.

⁷ And in fact many Digital stations such as WLVT-TV (ALLENTOWN, PA), WPVI-TV (PHILADELPHIA, PA), WCAU (PHILADELPHIA, PA), KTFK-TV (STOCKTON, CA), KTNC-TV (CP-CONCORD, CA), and KTTV (LOS ANGELES, CA).

III. COMMISSION MUST ENSURE SECURITY OF COGNITIVE RADIO AND SOFTWARE DEFINED RADIO TECHNOLOGIES

6. The State urges the Commission to give serious consideration to ensuring the security of devices utilizing Cognitive Radio (CR) and Software Defined Radio (SDR) technologies. Unauthorized modification of the hardware and software can lead to disruptions, and/or cause interference to Public Safety communications. It is clear that other commentors had similar reservations on the security issues associated with SDR and CR⁸.
7. In particular, NPSTC was concerned with the potential for an SDR to degrade Public Safety communications as a result of software modifications to devices after they have left the manufacturer⁹. NPSTC's comments also considered the security issues stemming from software modifications; particularly modifications that could be applied to large numbers of devices in a short period of time¹⁰. Whether these large-scale modifications were malicious or unintentional is inconsequential with regard to their ability to cause interference. Both pose a grave threat that could result in interference or widespread disruption to Public Safety and/or private radio services¹¹. We concur with NPSTC's comments and urge the Commission to ensure that the proper safeguards exist to manage security in these SDR and CR devices.
8. Vanu, Incorporated, a pioneer in the field of SDR technology, also provided excellent comments on security issues. Vanu cited the need for such a declaration may be desirable

⁸ Comments of NPSTC, and Vanu, Inc.

⁹ Ibid, page 8-9.

¹⁰ It is clear that a virus that could infect cellular phones and cause them to simultaneously dial 911 could overwhelm emergency response systems.

¹¹ Ibid, page 8-9.

when harmful interference occurs from a foreseeable modification by a third party¹². We agree with Vanu that it would be appropriate for the Commission to require a mandatory declaration of security for SDR. We also agree with Vanu that the Commission should consider a review of security provisions, and continue to track of effectiveness of security measures for both SDR, and CR¹³. The State feels these measures would provide Public Safety some assurances that both protection against malicious activities and prevention of interference have been addressed, and will continue to be a priority.

IV. RAISING TRANSMIT POWER ON ISM BAND IS UNNESSARY

9. In our comments we respectfully urged the Commission not to permit wide scale approval of higher power operation on the ISM band. We note that a number of commentors had similar opinions on this matter¹⁴. The State believes that approaches (such as those of WaveRider Communications) which advocate a “good neighbor” policy will prove more conducive to reducing interference, and will also create greater opportunities for spectrum access¹⁵. The Wireless Broadband Coalition also offered several alternative approaches to raising transmitter power levels, instead employing concepts already incorporated into existing Part 15 Rules¹⁶. The State believes that permitting higher power operation in the ISM bands is not an efficient use of the spectrum, may serve to increase interference, will not create greater access to spectrum, and is fundamentally unnecessary. Therefore, we again respectfully urge the Commission not to permit higher power operation in the ISM bands.

¹² Comments of Vanu Inc. filed on May 3, 2004, page 4.

¹³ Ibid, page 4-5.

¹⁴ Comments of APCO, Cellular Telecommunications & Internet Association (CTIA), NPSTC, Radio Amateur Satellite Corp. – AMSAT, and Wireless Broadband Operators Coalition.

¹⁵ Comments of WaveRider Communications on ET 03-108, page 3-4.

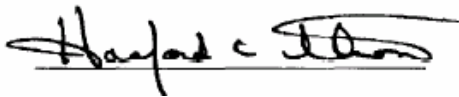
¹⁶ Comments of the Wireless Broadband Operators Coalition, page ii.

V. CONCLUSIONS

10. We thank the Commission for the opportunity to participate in this proceeding - that one day may provide Public Safety with access to important and advanced communications technologies. At the same time we must temper our eagerness to explore the capabilities of these technologies with assurances that issues affecting Public Safety and Homeland Security communications and operations will be adequately addressed. The State respectfully urges the Commission to consider our points when developing spectrum policy pertaining to this proceeding; these include:

- Consideration of the negative impacts of spectrum leasing on Public Safety;
- Ensuring the security of CR or SDR technologies, particularly with regards to reconfigurability and interference to Public Safety communications; and
- Raising transmit power on the ISM bands is unnecessary.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Hanford C. Thomas", written over a horizontal line.

Hanford C. Thomas, Deputy Director – OFT

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